

## WHAT IS CLAIMED IS:

- 1           1.     A formatting template for printing XML files, comprising a data map  
2     format containing XML descriptors defining the formatting for elemental content of  
3     the XML file.
- 1           2.     The formatting template of claim 1 wherein the XML descriptors are  
2     identified by a qualified tag.
- 1           3.     The formatting template of claim 1 wherein the qualified tag comprises  
2     a concatenation of XML element start tags that must be traversed in the XML file to  
3     get to a particular element.
- 1           4.     The formatting template of claim 1 wherein the qualified tag identifies a  
2     description that is used to format the content for the element.
- 1           5.     The formatting template of claim 4 wherein the qualified tag is  
2     generated whenever a start tag is encountered.
- 1           6.     The formatting template of claim 4 wherein the qualified tag is modified  
2     whenever a start tag is encountered.
- 1           7.     The formatting template of claim 1 wherein the XML file to be printed is  
2     parsed into element contents that can be broken into fields and processed using a  
3     chain of field XMDS.

1           8.     The formatting template of claim 7 wherein the element contents are  
2 broken into fields either with byte counts or with delimiters.

1           9.     The formatting template of claim 1 wherein a chain of attribute XMDS  
2 are used for formatting attributes, wherein the attributes are broken into fields, the  
3 fields being formatted with a chain of field XMDS.

1           10.    A printing system, comprising:  
2           a spooler for receiving printable information from the print channel;  
3           a print services facility for parsing an XML file, formatting the XML file  
4 according to a formatting template, the print services facility organizing a data  
5 stream representing the formatted XML file and generating a print steam having  
6 been formatted using the formatting template; and  
7           a printer for printing the print steam according to the formatting defined by the  
8 formatting template;  
9           wherein the formatting template defines a data map format containing XML  
10 descriptors defining the formatting for an element of the XML file.

1           11.    The printing system of claim 10 wherein the XML descriptors are  
2 identified by a qualified tag.

1           12.    The printing system of claim 10 wherein the qualified tag comprises a  
2 concatenation of XML element start tags that must be traversed in the XML file to  
3 get to a particular element.

1           13.    The printing system of claim 10 wherein the qualified tag identifies a  
2   description that is used to format the content for the element.

1           14.    The printing system of claim 13 wherein the qualified tag is generated  
2   whenever a start tag is encountered.

1           15.    The printing system of claim 13 wherein the qualified tag is modified  
2   whenever a start tag is encountered.

1           16.    The printing system of claim 10 wherein the XML file to be printed is  
2   parsed into element contents that can be broken into fields and processed using a  
3   chain of field XMDS.

1           17.    The printing system of claim 16 wherein the element contents are  
2   broken into fields either with byte counts or with delimiters.

1           18.    The printing system of claim 10 wherein a chain of attribute XMDS are  
2   used for formatting attributes, wherein the attributes are broken into fields, the fields  
3   being formatted with a chain of field XMDS.

1           19.    A method for printing XML files directly using a formatting template,  
2    comprising:  
3           placing an XML file to be printed on a server spool;  
4           providing a formatting template to a print services facility, wherein the  
5    formatting template defines a data map format containing XML descriptors defining  
6    the formatting for an element of the XML file; and  
7           pulling the XML file from the spooler for generating a formatted print stream  
8    using the formatting template.

1           20.    The method of claim 19, further comprising:  
2           parsing the XML file to be printed into elemental content;  
3    searching the formatting template for formatting instructions for a parsed element  
4    content;  
5           determining whether the search was successful;  
6           formatting the element content using formatting instructions obtained by the  
7    search; and  
8           determining whether the end of the document has been reached.

1           21.    The method of claim 20, further comprising continuing to process  
2    parsed element content when the end of the document is not reached.

1           22.    The method of claim 21, further comprising sending the formatted data  
2    stream to a printer.

1           23.    The method of claim 19 wherein the formatting template comprises a  
2 chain of attribute XMDS for formatting attributes, wherein the attributes are broken  
3 into fields, the fields being formatted with a chain of field XMDS.

1           24.    An article of manufacture comprising a program storage medium  
2 readable by a computer, the medium tangibly embodying one or more programs of  
3 instructions executable by the computer to perform a method for printing XML files  
4 directly using a formatting template, the method comprising:  
5           placing an XML file to be printed on a server spool;  
6           providing a formatting template to a print services facility, wherein the  
7 formatting template defines a data map format containing XML descriptors defining  
8 the formatting for an element of the XML file; and  
9           pulling the XML file from the spooler for generating a formatted print stream  
10 using the formatting template.

1           25.    The article of manufacture of claim 24, further comprising:  
2           parsing the XML file to be printed into elemental content;  
3 searching the formatting template for formatting instructions for a parsed element  
4 content;  
5           determining whether the search was successful;  
6           formatting the element content using formatting instructions obtained by the  
7 search; and  
8           determining whether the end of the document has been reached.

1           26.    The article of manufacture of claim 25, further comprising continuing to  
2 process parsed element content when the end of the document is not reached.

1           27.    The article of manufacture of claim 26, further comprising sending the  
2 formatted data stream to a printer.

1           28.    The article of manufacture of claim 24 wherein the formatting template  
2 comprises a chain of attribute XMDS for formatting attributes, wherein the attributes  
3 are broken into fields, the fields being formatted with a chain of field XMDS.

1           29.    A printing system, comprising:  
2           spooler means for receiving printable information from the print channel;  
3           print driver means for parsing an XML file, formatting the XML file according  
4 to a formatting means, the print services facility organizing a data stream  
5 representing the formatted XML file and generating a print steam having been  
6 formatted using the formatting template; and  
7           printing means for printing the print steam according to the formatting defined  
8 by the formatting template;  
9           wherein the formatting means defines a data map format containing XML  
10 descriptors defining the formatting for an element of the XML file.